IN THE TITLE:

Please replace the prior Title with the following amended Title:

SEMICONDUCTOR LIGHT DETECTING ELEMENT ~~AND MANUFACTURING METHOD THEREOF~~ INCLUDING FILM WHICH COVERS LIGHT RECEIVING REGION NEAR MAIN SURFACE OF MULTILAYER STRUCTURE AND ELECTRODE ON MAIN SURFACE

IN THE SPECIFICATION:

Please amend the specification as follows:

[0013] The multilayer structure may further comprise a depression formed about the photodetecting region, and a wiring electrode arranged within the depression. The first electrode may be electrically connected to the second electrode through the wiring electrode. The third electrode may be electrically connected to a part positioned near the ~~phtodetecting~~ photodetecting region in the high-concentration carrier layer. The depression formed about the photodetecting region separates the ~~phtoodetecting~~ photodetecting region at least partly from the other parts of the multilayer structure, and thus can reduce parasitic capacitance by a greater amount. When the wiring electrode arranged in the depression is utilized as a through electrode penetrating through the multilayer structure, the through electrode can be formed very easily. When the through electrode is used, the electrode is directly drawn from the high-concentration carrier layer of the photodetecting part, whereby the series resistance can be reduced greatly.

[0026] This method may further comprise the steps of forming a depression about the photodetecting region; and providing a wiring electrode for electrically connecting the first electrode to the second electrode in the depression. The step of forming the third electrode may include the step of forming the third electrode such that the third electrode is electrically connected to a part positioned near the ~~photodeteeing~~ photodetecting region in the high-concentration carrier layer. The depression formed about the photodetecting region separates the photodetecting region at least partly from the other parts of the multilayer structure, and thus can reduce parasitic capacitance by a greater amount. When the wiring electrode arranged in the

depression is utilized as a through electrode penetrating through the multilayer structure, the through electrode can be formed very easily.

[0032] 1: glass substrate; 121a: lens part; 2: etching stop layer; 3(3a): high-concentration carrier layer; 5(5a): light-absorbing layer; 7(7a): cap layer; 9: photodetecting region; 10: film; 11: ~~phtodetecting~~ photodetecting part; 12: depression; 17: contact electrode; 21: first electrode; 23: contact electrode; 25: first wiring electrode; 27: first pad electrode (second electrode); 31: third electrode; 33: second pad electrode; 35: second wiring electrode; 41: bump electrode; 51: semiconductor substrate; 60: film; 131a: lens part; 71: contact electrode; 73: through lead; 81: third electrode; 83: contact electrode; LS1, LS2: layer structure; PD1 to PD8: semiconductor photodetector device; PDA1, PDA2: semiconductor photodetector array.

[0038] At the top part of the photodetecting part 11, a depression 13 is formed on the outside of photodetecting region 9 as seen in the direction along which light is incident. The depression 13 is formed like a groove such as to reach the high-concentration carrier layer 3a and surround the photodetecting region 9. Thus, the photodetecting part 11 includes a mesa-like inner part 11a containing the photodetecting region 9 and an outer part 11b surrounding the inner part 11a. The depression 13 is formed like letter C extending along the edge of the ~~photodeteceing~~ photodetecting region 9 while leaving a portion of the top part of the photodetecting part 11 as seen in the direction along which light is incident.

[0049] The taking out of ~~electrodes~~ an electrode from the photodetecting region 9 is realized by the contact electrode 23, first wiring electrode 25, first pad electrode 27, and bump electrode 41.

The taking out of ~~electrodes~~ an electrode from the high-concentration carrier layer 3a is realized by the contact electrode 17, second pad electrode 33, and bump electrode 41.

[0050] A film 10 is formed on the front face 101 of the multilayer structure LS1 so as to cover the light-receiving photodetecting region 9 and first electrode 21 (the contact electrode 23 and the electrode part 25a of the first wiring electrode 25). The film 10 is made of silicon oxide ~~(SiO_2)~~ (SiO) and is optically transparent to incident light. The surface 10a on the side opposite from the multilayer structure LS1 in the film 10 is flattened. The film 10 has a thickness of 3 to 10 μm.

[0117] The third electrode 81 includes a contact electrode 83, a second pad electrode 33, and a second wiring electrode 35. The contact electrode 83 passes through a contact hole 20b formed in the electrically insulating film 20, so as to be electrically connected to the high-concentration carrier layer 3. The second pad electrode 33 and second wiring electrode 35 are formed so as to cover the contact electrode 83, and are electrically connected to the contact electrode 83. A bump electrode 41 is arranged on the second pad electrode 33 as in the first pad electrode 27. The taking out of ~~electrodes~~ an electrode from the high-concentration carrier layer 3 is realized by the contact electrode 83, second pad electrode 33, and bump electrode 41.

[0149] Seventh Embodiment

Fig. 35 is a schematic sectional view showing the structure of the semiconductor photodetector device in accordance with a seventh embodiment. This semiconductor photodetector device PD7 differs from the semiconductor photodetector device PD5 in

accordance with the fifth embodiment in that it has a film made of silicon oxide ~~(SiO_2)~~ (SiO) or a resin instead of the glass substrate 1 and film 10.